CHAPTER I

THE UNIVERSE IN RELATION TO MAN

HUMAN history is a brief fragment. Time eternal, as it must succeed the present day, so must have preceded it; space infinite lies around us. Can space and time ever be without material contents? However this may be, it is hundreds of millions of years, if we may trust the astronomers and physicists, that the stars of heaven have been gathering splendour and pouring out their light into the regions of space; and even if we take the history of our earth alone, geologists will certainly not be content with a million years to account for the strata which must have been deposited in the waters of the ocean, and which are now raised up into mountain ranges. What, compared to these vast realities, is human history? It is but six or eight thousand years of the past that are illuminated for us by written records, for the most part very imperfectly; and it is one of the smallest and most insignificant of the orbs of space that has been the scene of all human action, from first to last.

It is true that there is, even on the first showing of the matter, something to be said in honour of historical study, when compared with the science of the external universe. In human history we find beings whom we may love; even in the sorrows and tragedies of human life a deep interest is often involved; hope is caught and cherished in our hearts from the hopes of the human beings who have preceded us; reverence is felt for brave souls, who have acted and suffered heroically. These are sentiments which the astronomer, the physicist, or the geologist may feel as a man; but they are not written for him, according to his present knowledge at all events, in the science which he studies; if he wishes to feel his heart warmed, his sympathies strengthened, he will find the fuel of such fire in the pages of history, but scarcely will he find it in the sciences of external observation or in the calculations of the intellect.

Yet, when we have said all that we can in favour of historical study, a question remains behind, which may damp our ardour

again. Is not the race of man, no less than the individual man, transitory? Is there not this permanent cloud hanging over us, that we must all disappear into nothingness, first each one of us individually, and then after many ages the entire race of men? How many races of living beings, strong in their own day and generation, have disappeared from the surface of the earth—the ichthyosaurus, the mammoth, the moa of New Zealand—which last, even two centuries ago, is said to have been a still living creature! Many, many other less notable species of animals have flourished on this earth for ages, but have now departed, and can never be revived again. May not mankind vanish, even as the others have vanished? and we may remember that the eminent physicist Helmholtz predicted the extinction of the solar light and heat, without which earthly life can hardly exist. Can mankind exist for ever?

A certain answer to such a question as this might be supplied from the Christian religion, with its promise of a new heaven and new earth, were we to take that promise literally; but in any such literal acceptance we should be deserting wholly that natural human understanding on which we rely for all our ordinary actions; and it will not be history in that case which will be our guide, but a scheme of things independent of history. It will be the task of the present work, in subsequent chapters, to show that the Christian religion is really the solvent of the historical problem, elevating history so as to make it the more inspired companion of physical science; but not the Christian religion in its literal acceptation; the Christian religion interpreted by the light of the experience we have gathered since the time when that religion first began, nearly nineteen centuries ago.

Our present problem is to find a scheme of thought which shall give an explanation, not quite inadequate, of the state of things in which we live; so far, at least, as to satisfy our conscience, and not to clash violently with our understandings. The physical universe, whatever else it may be, is a cradle in which human history lies; and it is possible that, as physical science influences and colours human history, so likewise the elements of human history may be able to impart a colour and a warmth, a sympathetic emotion, to parts of the physical universe where at present we do not suspect the presence of life at all. If this be so, human history will indeed be a talisman of power. Let us consider the nature of it more closely.

That which first strikes the inquirer, when he pays regard

to those purposes, struggles and thoughts, which fill the history of man, is the exceeding subtlety of the field, when compared with that which physical science tries to compass. Physical science, it is true, has its subtle methods, among which the theorems of mathematics are preeminent; but no mathematical theorem presents that mixture of plain direct reasoning with elusive side-currents, dimly conjectured and uncertain, which is the ordinary staple of history. Among the greatest themes of history are the characters of men; and if the characters of men are often a puzzle to us in the intercourse of common everyday life, how much more must they be so when our whole knowledge of them is derived from the writings of fallible, often prejudiced and ignorant, witnesses! Therefore, in spite of the vastly greater compass of physical science both in time and space, history presents for our decision more doubtful, more difficult problems, than any part of physical science does.

But the next thing we observe, when we study the history of man (and more notably at the present day than ever before) is that the history of man introduces to our notice a principle of government, in a sense in which physical science does not. In physical science we have intermingling causes, forces which combine in different proportions and produce diversified results; but physical science, in the strict sense of the word, excludes the consideration of purposes, aims and ends; whereas government is essentially concerned with purposes, aims and ends.

Looking however into the matter more closely, we observe that no sharp severance can be made between the topics of physical science on the one side, and the topics into which government enters as a necessary constituent on the other side. The physical side of life can never be ignored; and hence living things cannot be excluded from physical science; yet all living things are organised; and organisation implies government. The apportioning of forces towards an end is government, and the apportioning of forces towards an end is seen in the lily and the oak-tree, in a way in which it is not seen in the mountain torrent or in the movements of the clouds or in the revolution of the planets round the sun. The lily and the oak-tree draw nutriment out of the air, the water, and the earth in such quantities and proportions as will best nourish the lily or the oak-tree to its perfection; we know by what channels this is done, but we cannot measure the forces employed in the operation, or say why the plant chooses certain elements for its nurture and rejects others. We

are in presence of something of the same mystery which we find in human history; life, wherever it be found, has something in it which we cannot reason about with certainty.

Life is mysterious, because of the incalculable nature of that organised energy which it sets into action. The peculiarity of organisation is this, that while we do not appear to create force by it, we do multiply very greatly the effectiveness of force; we increase our own effective power; and we bring to light forces of which otherwise we should have been ignorant. Looking back through the records of history, we see that human power has increased wonderfully as the ages have gone by, and that the increase has taken place through larger and more thorough organisation. It was a wonderful thing for the Pharaohs of Egypt to build the pyramids; but how much more wonderful are the feats of modern engineers! The piercing of mountains by tunnels, the construction of railways and railway engines, steamships and harbours, are deeds which far surpass anything which was done four, five, or six thousand years ago. The Pharaohs did not more surpass the builders of the lake dwellings of the primitive ages, than they have been surpassed by the material constructors of the present day; and all because our means of organisation are greater and more flexible. Take another example. In no period of ancient times was government as effective as in the period of the early Roman emperors, down to Marcus Aurelius inclusive. Could those emperors have established a post office in each city of their dominions, to convey letters with the accuracy with which they are now conveyed in Italy and France and Spain? They certainly could not, nor did any one in those days dream of doing such a thing; letters were sent by special messengers, known to the sender, and as these were necessarily few, letterwriting could not be a general practice. Men were neither so peaceable, nor so enterprising, nor so faithful, seventeen hundred years ago as they are now; and therefore organisation is far more powerful at the present day than it was in ancient times; and the result is, that the race of man has increased in power incalculably.

It will be seen then that human history, inferior as it is to physical science both in range and in accuracy, does introduce to our notice a form of power which physical science hardly notices at all. It is true that physical science cannot help mentioning living organisms; but writers on physical science never, as far as I know, take note of the great power which the principle of organisation supplies.

But having said this, I must mention an objection which may not improbably be made to this exaltation of organising power. It may be said, that as organisation does not create force, but only uses force more effectively than the crude natural man can use it, the effectiveness of organisation is necessarily limited by the amount of force, or energy, which is supplied to it. Moreover, it will be added, since the earth and the whole solar system are continually losing energy by the dissipation of heat and other forms of energy into the surrounding space, there will come a time when organisation in this part of the universe will cease, because there is no more force or energy for it to work up into new forms of effectiveness. This is an argument which, not precisely in these words, but in this sense, is actually used at the present day.

It is an argument which, for its validity, depends entirely on the assumption that the amount of force, or energy, which awaits our care, our intelligence, and our industry, in the years which are to come, is finite and not infinite. If an infinite store of energy is laid up in the unknown storehouses of the universe; if access to those storehouses is obtainable by us; then the living inhabitants of the earth, of whom man is the head, will never want material on which to operate, will never want the means of operating; the bankruptcy with which we are threatened will not take place. If, however, proof be required that that infinite store exists, such proof from the nature of the case cannot be had; a store whose existence can be proved would by that very fact be finite and not infinite. Proof, then, must not be demanded; but a belief may be felt to be reasonable, and rightly accepted, in spite of the absence of strict proof; and the question is, whether the belief that man has an infinite support behind him to carry his action on through all future ages, is reasonable or not.

It will not be out of place to refer here to the opinion of a famous philosopher, who will not be accused of prejudice. Herbert Spencer, is not, I believe, an authority on the details of science; and he is certainly not an authority on history. But no man has ever looked more steadily and impartially than he on the whole scope of science, so as to discern the philosophical elements inherent in it. He was the first of all men to discern the immense range of the principle of evolution; and as the counterpart of that immense range in the results, he saw that the source of evolution must be one. Let me quote the remarkable words in which he enunciated this last truth; it is the closing sentence of the sixth part of his *Principles of Sociology*;

> Amid the mysteries which become the more mysterious the more they are thought about, there will remain the one absolute certainty, that he [i.e. the man capable of discernment] is ever in presence of an Infinite and Eternal Energy from which all things proceed.

The form of the concluding phrase must be noted; Spencer does not say, "from which all things have proceeded"; it is the present and ever continuing effluence of the visible from the invisible of which he speaks. The utterance is not properly a religious one; but it marks with precision the limit at which science passes over into religion; and religious considerations are, I believe, needed for its full acceptance. But even without bringing religious considerations to bear, so important is the principle of the unity of origin of all existent things, that the sentence I have just quoted deserves great respect on scientific grounds alone; and it will be well to consider in the first place how far it is supported by the obvious primary aspect of things, before adding those elements of thought and feeling through which Spencer's principle becomes truly religious.

We notice, that at the birth of every human infant something new enters the world of our knowledge, which had not been there before; and it is difficult not to extend this assertion to other new born things which are not human. There is a new centre of energy; the baby derives large portions of its being from its father and mother, but its individuality it does not derive from its father or its mother. It is a new person in the world; and so mysterious is the source of personality, that we cannot refuse to contemplate the possibility that new energy may enter the world through this avenue. If this be so, the invisible reinforces the visible.

There is a further series of facts, which in some degree can hardly be denied to be true, but which for their full verification must probably await further experience; these, if finally verified, would greatly support the view that new energy enters the world along with new life. It can hardly be denied that the fertility of the earth depends in no inconsiderable degree on the energy and skill of man. Recent discoveries have made known the fact, that large portions of central Asia, which are now barren and waterless, were formerly well watered and populous. Did the desolation which has overtaken these tracts come from natural causes alone, and was it incapable of being averted by human effort? is it now incapable of being remedied? I believe that the most probable answer to these questions, judging both by

what we know of the wild savagery that prevailed in central Asia in bygone days (of which Jingis Khan is the most famous but far from the only example), and also by what has been done by civilised men during recent years to reclaim deserts in various parts of the world, is that prudent human action is capable of increasing the sum of life on the earth, as certainly perverse human action is capable of diminishing it. If further experience shows that this is true on a large scale, the contention that there is an Infinite and Eternal Energy, from which all the energy of this visible world has proceeded and does proceed, will be felt at any rate to be quite consistent with our natural knowledge; and life will be seen to be the avenue through which it enters the world.

But now it must be considered in what way religion, as we know it in our experience, affects the question. Herbert Spencer spoke of the Infinite and Eternal Energy as essentially the Unknown; and unknown it is through any of our sensuous faculties. But the emotional part of man is not sensuous; the sympathy which binds human beings together is not sensuous. Will these parts of our nature tell us anything about the Infinite and Eternal Energy? Let us bear in mind how closely the sympathetic parts of human nature are allied to that power of organisation, which as a power is not reckoned very highly by physical science, but which history reveals to us as truly important in relation to man, and which gives us a prospect of attainments in the future far beyond any which have been reached at the present day. If men sympathise with each other, they can work together, and organisation can proceed safely. Sympathy then is closely related to the most characteristic power which man possesses, to the highest ideal at which he can aim.

It is no superficial or transient need of human nature which bids us desire an orderly life, a life in which our duties are commensurate with our faculties, in which affection is predominant, in which our present labours are lightened by future hopes. These are the elements, spiritual and not material, in which human power centres. But in order to show how these may be fostered, how sympathy may be fostered and organisation extended, I must make that transit into true religion which Herbert Spencer stood on the brink of but did not actually make.

If the Infinite and Eternal Energy be a Spirit, full of all that sympathetic emotion which is exhibited by the best persons in their highest moments (though that Spirit is too mysterious to

be called definitely a person), then the universe is worthily animated by its central Power. No one who believes this will think prayer unnatural; for every one must feel that his own character is made up of various habits of action and strains of feeling, of which some are less worthy than others, and some need repression, others need to be strengthened. That Infinite Spirit of whom I have spoken is in religion named God; and it will be the object of the present treatise, while not denying some intrinsic merit to human nature, to show that the animating and controlling power of God is a necessity for mankind, and that prayer is the natural intercourse between man and God. I do not speak from mere theory; had I not been saved by it myself, I would not have recommended it to others.

We are saved by prayer to God; but yet the relation in which we stand to man, as well as the relation in which we stand to God, must be a part of salvation in its full sense. To be saved in the full sense, must mean that we are capable of surviving that seeming collapse, which we all of us suffer in death; and if we are capable of surviving it, then the organisation which begins in this life must be continued into a future life, and for all eternity; and this means that we have eternal relations with our fellow men.

Government of the spirit of man, and therewith government of this earth, which is the abode of man; government by divine inspiration and help, leading to a salutary organisation, and thereby to increased life and happiness; such is the solution which I offer for the problem which life presents to us. But I add this, that it is a solution which will be found unavailable unless we extend our views towards a life which shall belong to us after this life in the flesh has passed away; for that alone will give us a perfect organisation, and perfect relations with our fellow men. And I may be permitted to add, though it is a thesis the proof of which is beyond the present chapter, that in Christianity, when the right distinctions are made, when we see rightly what elements are temporary and what permanent in that entire system which we name Christianity, lies the power to create those eternal relations of men with the Divine Being and with each other which will constitute a full solution of the problem of life. Not, however, until I come to deal with the life and death of Jesus Christ, can I clothe this whole subject with those sacred and inviolable emotions which are to us the witness of there being, in our own persons, an eternal element.

At present I must recede from the topics to which I have

just been referring. It is not the permanence of the individual, but the permanence of terrestrial life and specially of humanity, with which the present chapter is concerned; and there is a difficulty in the way of our believing the permanence of terrestrial life, which may seem formidable. Against ordinary dangers it is not hard to conceive that we may protect ourselves by a right use of the resources that we possess; but there is one danger against which it may seem that we are quite powerless. The future extinction of the sun's light and heat was predicted by Helmholtz, on grounds accepted by the leading physicists and astronomers of the world as an event likely to take place not indeed very soon, but still within twenty million years from the present time; and though twenty million years is long as compared with the individual life of any of us, it is nothing compared with eternity. Twenty million years will come to an end as surely as fifty years will come to an end; if, after twenty million years, all life on the earth is destroyed, our view of the universe is not essentially altered from what it would be, if we supposed the destruction about to take place within fifty years from to-day. It is true that we may fall back on the view of literal minded Christians, and suppose that a new heaven and new earth will be provided for us twenty million years from to-day; but such an interpretation of the well-known passages in the Old and New Testaments is not a very satisfactory one; and the want of reasonableness about any such view cannot but be felt as very damaging to it.

It is, however, well known that the recent discovery of radium has tended very considerably to modify the theory of Helmholtz in the eyes of all scientific thinkers. But before saying how and to what extent the theory of Helmholtz has been modified of late, it will be well for me to give some brief account of what the theory is in itself.

The theory of Helmholtz is an expansion of that earlier theory, the nebular hypothesis; which, first conceived by Kant, and strengthened by Herschel and Laplace, was always received with considerable favour, though perhaps not with absolute acceptance, by scientific men. Here is the tale of it, as far as concerns the solar system.

In the beginning there was a vast nebula. How this nebula came, we are not at present to inquire; but however it came, it gathered towards its centre and began to revolve, by virtue of the Newtonian law of attraction. More and more, as the ages rolled on, it grew in coherence; yet certain films, at successive

intervals, detached themselves from the main body of the nebula; and these films probably surrounded the main nebula like rings, and revolved about it, as the rings of Saturn do about that planet now. In any case, whatever the exact shape of these films, they gradually grew together severally into their densest portions, until each film became a globe of hot, gaseous or molten, matter, the primitive form of a planet. Of these planets one, as we know, has in its cooling down become the abode of living beings; the other planets have also cooled down, but whether they are the abodes of living beings is not certainly known. It is a natural, but not absolutely necessary, part of the theory, to suppose that the satellites of the planets were formed by a similar process to that by which the planets themselves were formed.

All these planets however in their entirety were but a very small fraction indeed of the nebula; and after the planetary films had been detached, the mass of the nebula still kept retreating inwards, in globular form, revolving continually about a central axis, until at last it assumed that size under which we know it, being no other than our brilliant luminary, the Sun.

So far, so good; but in the above description it has not been explained how the sun has come to be so brilliant or so hot as it is; or why the planets (seemingly) were once brilliant and hot. Laplace has assumed that the whole nebula was from the first of fiery substance; but about the middle of the nineteenth century Helmholtz showed, by a very notable train of reasoning, that this assumption was not necessary. It was the compression, Helmholtz said, involved in the contraction of so vast a mass, which had engendered the solar heat and light; for it must be remembered that the nebula is held to have been at first immeasurably larger than it is now. The sun, Helmholtz added, is still contracting; the contraction produces continually a vibratory movement in all the particles of the sun throughout his whole mass; in this vibratory movement heat and light consist; and the vibration is communicated to the ether which surrounds the sun, and is conveyed through the ether to distant parts of the universe. Nor is it only heat and light that are thus conveyed; electricity, magnetism, and even chemical forces are wafted on the waves of the ether, ready to do any work that may come in their way; and thus for instance a magnetic storm in the sun may create an aurora in the earth, the chemical rays from the sun affect beneficially the foliage of plants, and the light waves